

Navigating the talk at sea: Expanding conversational sequences in maritime communication

Yun Pan, Jie Wang & Yan Zhang

Shanghai Maritime University (China)

ypan@shmtu.edu.cn, wangjie1@shmtu.edu.cn, yanzhang@shmtu.edu.cn

Abstract

This article makes the case for the expanded conversational sequences observable in a specific type of high-stakes, professional communication: interaction of vessel traffic services (VTS). Within the theoretical framework developed by Schegloff (2007) and Kendrick et al. (2020), we examined patterns of sequential expansion in VTS interaction via Very High Frequency (VHF) radio at a major port located in China. Using the method of Conversation Analysis to analyze the authentic, audio-recorded language data, we illustrate how functional motivations for sequential expansion in informal, ordinary conversations can be mobilized into the mechanisms of routinized maritime communication. The findings not only build on the main lines of development in the emic approaches to interaction in contextualized, specialized discourse, but also bring to light the limitations of stipulated communication protocols in safety-critical communication.

Keywords: maritime communication, VTS interaction, specialized discourse, sequential expansion, conversation analysis.

Resumen

La interacción verbal en el mar: la expansión de secuencias conversacionales en la comunicación marítima

Este artículo defiende la relevancia de las secuencias conversacionales expandidas observables en un tipo específico de comunicación profesional de alto riesgo: la interacción en los servicios de tráfico marítimo (*Vessel Traffic Services*, VTS). A partir del marco teórico desarrollado por Schegloff (2007) y Kendrick et al. (2020), se examinan los patrones de expansión secuencial en

interacciones VTS realizadas por radio de muy alta frecuencia (*Very High Frequency*, VHF) en un importante puerto situado en China. Mediante el método del análisis de la conversación aplicado a datos lingüísticos auténticos registrados en audio, se muestra cómo las motivaciones funcionales de la expansión secuencial en conversaciones ordinarias e informales pueden incorporarse a los mecanismos de la comunicación marítima rutinaria. Los resultados no solo amplían las principales líneas de desarrollo de los enfoques émicos de la interacción en discursos especializados y contextualizados, sino que también ponen de manifiesto las limitaciones de los protocolos de comunicación prescritos en contextos comunicativos críticos para la seguridad.

Palabras clave: comunicación marítima, interacción VTS, discurso especializado, expansión secuencial, análisis de la conversación.

1. Introduction

Maritime communication refers to the structured exchange of information between vessels, ports, coast guards, and other maritime stakeholders to ensure safe, efficient, and regulated navigation (Brødje et al., 2013; Costa et al., 2018; Pritchard & Kalogjera, 2000; Trenkner, 2010). Such communication requires both shipboard crews and shore-based personnel to be consistently “observing standard procedures, apply message patterns and make use of the expected discursive features” (Bocanegra-Valle, 2011, p. 36) to ensure that language is used properly and that messages are transmitted accurately and effectively. Conversely, a failure to adhere to these communication protocols poses significant risks to navigational safety, operational efficiency, and regulatory compliance. Effective maritime communication is, therefore, not merely about exchanging information but ensuring that critical messages are accurately understood, contextually adapted, and procedurally actionable across diverse linguistic and cultural contexts.

This study responds to Franceschi’s (2014) calls for research on maritime language as specialized discourse devoted to highlighting “the internal nature of the various (communicative) domains” for “finer-grained descriptions of their organization” (p. 78). Such endeavor requires an action-based, emic perspective that views maritime communication as an interactional accomplishment. Specifically, how participants take turns at talk and how turns are organized into sequences are important to account for the decision-making process (Praetorius, 2014) and distributed control and

coordination between navigators onboard and the shore-based VTS centres to ensure safe navigation (de Vries, 2015). In this study we aim to identify and characterize the mechanisms of sequential expansion, namely, the structural expansion of talk beyond the basic adjacency pairs, involved in maritime verbal communication. To this end, we conducted original research using the method of Conversation Analysis (CA) to determine how sequences are expanded around base adjacency pairs at key positions and what exchange systems and procedural infrastructures established in informal, ordinary conversations are mobilized into talk in the maritime work place. We examined audio-recorded and transcribed interaction between VTS personnel and vessels via VHF radio (VTS interaction, thereafter) at a major port located in China.

We address the following research questions in this study: 1) What specific communicative functions are performed by expanded sequences at different positions in VTS interaction? 2) How does sequential expansion in VTS interaction demonstrate institutional adaptations to core properties of interactive language use? Our findings generate theoretical insights about the organization of VTS interaction, which would hopefully expand existing CA concepts (e.g., expansion typology) in maritime communication as a specialised domain, thus making conceptual contribution to the application of emic approaches to professional, safety-critical language use.

2. Setting the scene

2.1. Maritime communication from protocol to practice

The IMO has codified precise linguistic protocols to standardize maritime communication. Documentations such as the Standard Marine Navigational Vocabulary (SMNV, 1977) and the Standard Marine Communication Phrases¹ (SMCP, 2001) provide frameworks for verbal behaviors at sea, with restrictions on what is supposed to be verbalized and how. Nevertheless, the dynamic and mediative nature of real-time operational talk reveals a persistent gap between prescribed norms and the interactive competencies required for safe navigation.

The conversational structure of maritime VHF communication has been extensively studied in the 1980s in the Seapeak Project (e.g., Strevens & Johnson, 1983; Strevens & Weeks, 1985) within a model of basic international maritime English conversation in 9 stages: 1. *Initial call*, 2.

Respond to call, 3. *Indicate working channel*, 4. *Agree working channel*, 5. *Switch over*, 6. *Message*, 7. *Respond to message*, 8. *End transmission*, 9. *End procedure*. This ‘ideal procedure’, as referred to by Johnson (1982), however, does not always hold in real maritime communication. Pritchard and Kalogjera (2000) in their corpus-based study demonstrated that the actual maritime VHF communication largely deviates from the normalized standards laid down by the IMO. The deviation happens in almost every aspect of communication, including conversational structure, topical development, linguistic and non-linguistic turn-signaling, move-making and specific speech acts, etc. (Pritchard & Kalogjera, 2000, p. 188).

Pritchard and Kalogjera (2000) further proposed a model for detailed analysis of maritime communication into three major moves: *I. Opening*, *II Message*, and *III. Terminate* (p. 190). Operationally accessible may it be, the simplified model seems to have compromised on its credibility when dealing with conversational subtleties, thus suffering methodological limitations: 1) It does not differentiate types of opening exchanges (e.g. which are used to establish mutual attention and to get prepared for imminent specific requests), but suggests that most of the opening instances are reduced to shortened forms; 2) It simply takes the last utterance in a talk instance as a ‘terminate’ move, giving no considerations about how co-participants mobilize the talk towards the ending, the process of which contributes to building a structural space for post-expansion of sequences; 3) It seems to ‘pack’ too much information into the second move *Message*, without specifying how particular messages are produced, received, and negotiated (e.g. by initiating repair sequences as insert utterances); 4) Its structural layout leads to the finding that sequences in maritime communication do not essentially differ from those in mundane conversations, which is however, may not be the case; otherwise an institutional orientation to the maritime talk per se would be reduced to a triviality. Therefore, we argue that a sequence/action-based perspective can be an essential complement to a stage/move-oriented one (e.g., the Swalesian tradition for genre analysis) to better examine and understand the nature of maritime communication.

2.2. VTS interaction

Vessel traffic services (VTS) are shore-side systems ranging from “the provision of simple information messages to ships, such as position of other traffic or meteorological hazard warnings, to extensive management of traffic within a port or waterway.” (IMO). The VTS is implemented in

national waters, providing vessels with information transmitted and broadcasting on VHF radio (IALA, 2020). VTS interaction is believed to be purpose-driven, task-specific, involving divisions of labor, responsibility, and reciprocity. At the linguistic level, VTS interaction is characterized by “a limited vocabulary and simple grammatical structure” (Pritchard & Kalogjera, 2000, p. 185), with a strong preference for standardized linguistic forms stipulated in official protocols. At the communicative level, VTS interaction represents some of the key features of maritime communication (see Díaz Pérez, 2002), including being inherently “verbalized” and “event-driven,” with conversational utterances “intertwined and concurrent” involving “meta-communications” and explicit message markers carrying performative power (Andersen, 2001, p. 84; Pritchard & Kalogjera, 2000, pp. 185-187). The conversational structure of VTS interaction is highly predictable since co-participants have limited lexical and pragmatic choices relying on fixed protocols and compressed opening and closing exchanges on one-way VHF radio (Franceschi, 2014).

3. Sequential expansion in communication

3.1. Sequential expansion: What is it and where to find it

In human social interaction a base adjacency pair consists of a first pair part (FPP), produced by a first speaker to perform a specific action, which makes relevant a particular second pair part (SPP) by a next speaker (Sacks et al., 1974). Upon the recognizable production and completion of an FPP, the recipient should produce an SPP of the same sequence type. This relevance rule, known as *conditional relevance* (see Schegloff, 2007), unites turns at talk as a defining property of an adjacency pair (Schegloff & Sacks, 1973), making it a “socially normative and socially accountable structure” (Kendrick et al., 2020, p. 121). The adjacency pair “constitutes a basic interactional unit in conversation” allowing for expansion into “more complex sequences of action” (Kendrick et al., 2020, p. 121). Previous research on the structurality of sequential organization and expansion in mundane conversations has been devoted to explicating how the human awareness of language use per se and interpersonal mutuality is developed and evolved at the action level. Figure 1 illustrates how the presence of an SPP can be formulated as being ‘conditionally relevant’ to a recognizable FPP.

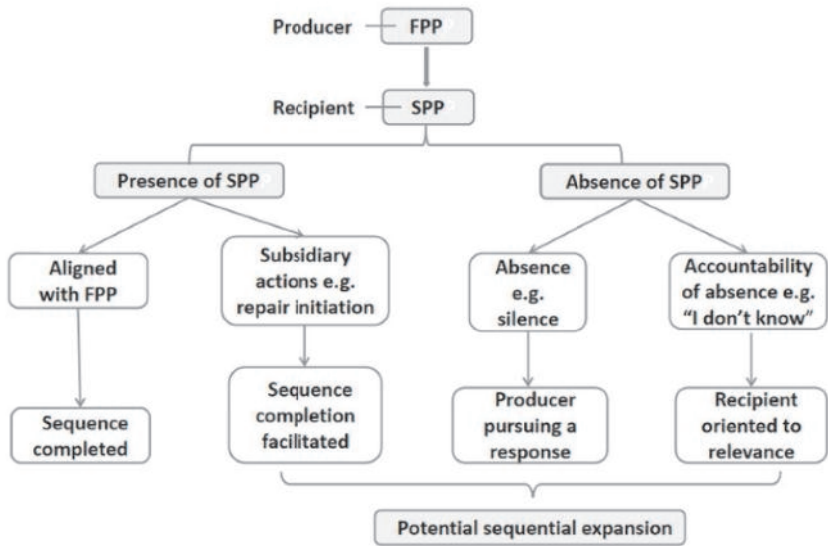


Figure 1. Adjacency pair and sequential expansion.

Sequential organization embodied in adjacency pairs with their possible expansion has been taken as a universal infrastructure for social interaction (Schegloff, 2007), since it exhibits adaptive cognition and negotiated social commitments, thus embodying two core, distinctive properties of human language: ‘reflexivity of signaling’ and ‘joint accountability of interactional agents’ (see Dingemanse & Enfield, 2024). Reflexivity of signaling prevails when the producer and the recipient communicate about their communication (Duncker, 2019; Taylor, 2000). For example, the recipient-initiated repair is inherently reflexive with utterances like “What did you say?”, “What do you mean by...?”, or even “Huh?” signaling the trouble source targeted in the FPP and meanwhile restricting the scope of a possible repair solution (Dingemanse & Enfield, 2015). A similar cognitive process is involved when the producer of the FPP pursues a response recognizing the absence of an SPP, in which the pragmatic import of silence can be easily sensed thus mobilizing adjusted utterances in the form of expanded sequences. The recipient’s accounting for the absence of a conditionally relevant SPP, by contrast, embodies the requirement of joint commitment in interactive language use (Gilbert, 2014). The producer is accountable for making their utterances audible, relevant and understandable; the recipient is accountable for ensuring and showing that they have heard and understood

(Enfield & Sidnell, 2022). Sequential expansion is thus a reflexive, mutually acknowledged mechanism by which co-participants account for norms, departures and failures in interaction.

3.2. Basics of sequential expansion: positions and functions

Schegloff (2007) describes three logical positions at which adjacency pairs can be expanded for English. Kendrick et al. (2020) further illustrates the functional motivations of six types of sequence expansion (Table 1).

Position	Type	Explication	Functional motivation
Pre-expansion	Generic	Projecting the relevance of a base FPP without specifying its action	Mutual attention must be established before the base sequence is delivered.
	Specific	Both projecting the relevance of a base FPP and specifying or delimiting the action it will perform	The nature of the forthcoming base sequence needs to be projected, especially where the base FPP is a socially delicate action, thus a precondition for the FPP can be checked.
Insert expansion	Post-first	Retrospectively oriented, managing troubles in hearing or understanding a base FPP	Central sequence elicited by an other-initiated repair, as a quality-control device for the flow of information in the base FPP.
	Pre-second	Prospectively oriented, establishing the conditions to decide between alternative base SPP	Used when further information is required in order to select among alternative SPPs.
Post-expansion	Minimal	The speaker of the FPP producing an action that registers the second and signals that the sequence is complete (sequence-closing thirds?)	Single-turn expansion registers the adequacy of the SPP and forgoes an opportunity to expand the sequence, indicating sequence closure.
	Non-minimal	i. Topicalizing a SPP treating it as worthy of further on-topic talk	A full adjacency pair performs the sequence-closing function, used to resolve problems arising from the SPP (e.g., an other-initiated repair sequence) or follow up on an SPP.
		ii. Initiating repair on a SPP	
		iii. Rejecting, challenging, or disagreeing with a SPP	
		iv. Reissuing or reworking a FPP after a non-aligning response	
		v. Repetitional receipt sequence	

Table 1. Types and functions of sequential expansion, extracted from Kendrick et al. (2020, pp. 125-133).

Kendrick et al.'s (2020) observations suggest that the specific structures of pre-expansion, insert expansion, and post-expansion designed and performed around the base adjacency pairs are “indeed a cross-linguistic and cross-cultural phenomenon” (p. 132). The remarkable uniformity of sequential expansion in different languages demonstrates its constant relevance to language in social interaction. It is motivated by the interactional

system which has basic communicative requirements that underline a mechanism for participants to manage recurrent contingencies generated by base sequences (Kendrick et al., 2020; see also Schegloff, 2007). On the other hand, such a mechanism of the interactional system imposes a division of cognitive labor between language producers and recipients to assist joint commitment for meaningful social action. A close observation of expanded sequences in interaction can provide access, though indirectly, to participants' cognitive processes, thus would be able to make visible how semiotic resources for communicative efficiency are distributed over minds to administer mutual understanding and normative accountability (Dingemanse & Enfield, 2024).

3.3. Motivations for sequential expansion

Sequential organization of conversations relies on the unique reflexivity of language and performs in its self-regulating system which necessitates constant, spontaneous quality control. Therefore, repair, as a quality-control mechanism dealing with problems in talk (Liddicoat, 2007), motivates sequential expansion and embodies asymmetry in co-participants' selection of response types (Dingemanse & Enfield, 2015). Positions matter when repair happens (Schegloff, 1992), and sequential expansion can enlarge or shrink the repair space (Liddicoat, 2007). Post-first inserts with a retrospective orientation are often formulated in repair sequences to manage troubles in hearing or understanding the base FPP (Kendrick et al., 2020). Most of such insert expansions are other-initiated repair involving an explicit exchange between two participants to identify, negotiate, and solve a problem at talk. Self-initiated repair, on the other hand, can be "interactionally contingent" (Dingemanse & Enfield, 2024, p. 31) occupying both insert and post- positions, when the speaker producing a turn senses 'trouble' no sooner than the recipient actually producing the next turn but providing some prosodic clues (e.g., silence, puzzled face) in the transition space. Non-minimal post-expansions, similarly, embrace repair sequences of various types, for example, sequences initiated to reject, challenge, disagree or simply identify trouble in the base SPP (Schegloff, 1992). Even the reissuing or reworking action of the FPP in a non-minimal post-expansion can be legitimately taken as a repair initiation that provides a restricted offer to mobilize further on-topic talk (Kendrick et al., 2020). Positions matter when repair happens within expanded sequences (Schegloff, 1992) and sequential expansion itself can enlarge or shrink the repair space (Liddicoat, 2007).

Preference design is another underlying mechanism that mobilizes sequential expansion. Preference as a structural notion primarily deals with “the patterning of response in action sequences involving recruitment and affiliation” (Heritage & Raymond, 2012, p. 40). Typical non-minimal post-expansions showcase how preferred and dis-preferred responses in the base adjacency pair would contribute to formulating different sequential organizations. Preferred SPPs are “sequence-closure relevant” inducing no further talk, while dis-preferred SPPs are “expansion-relevant turns” that would trigger expansion after the SPP in which “the implications of the dis-preferred are played out and problems of misalignment are dealt with” (Liddicoat, 2007, p. 164). The third position after the base adjacency pair is a legitimate position for co-participants to negotiate and solve the problem of sequence closure (Schegloff, 1992). Most non-minimal post-expansions are, therefore, found to be “remedial or disaffiliative in nature, used to manage various misunderstandings and misalignments” (Kendrick et al., 2020, p. 131). FPP *per se* can also involve preference design (Sacks, 1987). One typical example of dis-preferred FPP is the speech act of request that would risk taking up the recipient’s time or threatening their face. Request as a socially delicate action, thus, may need preliminary sequences in the form of pre-expansions to give early warnings of the nature of FPP (Schegloff, 2007). Within the base adjacency pair, on the other hand, request as FPP may induce delayed, qualified, and accounted (presumably dis-preferred) response by the recipient before the base SPP is produced (Heritage, 1984).

Sequential expansion in professional communication is also motivated and restricted by specific language practices regulated by participatory norms that define interactants’ institutional identities and roles (Heritage & Clayman, 2010). Restricted language practices are embodied in interactants’ rights and obligations to determine whether and how a base sequence is to be expanded. Both professional intersubjectivity (see Sellberg & Lundin, 2017) and non-verbal resources (see Sellberg & Lundin, 2018) are found to motivate expanded sequences in maritime communication. In addition, paired utterances at different sequential positions can be formulated into different patterns of post-expansions in professional communication. Institutional talk systematically lacks the use of change-of-state tokens (e.g. ‘oh’) at the third position to mark reception of information thus marking sequence completion. For the second-position, an utterance that would be taken as a legitimate SPP in a question-answer pair in mundane conversations can cause a departure from the participatory norms thus

triggering repair sequences as insert or post-expansions in institutional talk. For example, John et al. (2019) found that ‘okay’ produced as a second-position response in verbal maritime communication may cause the recipient’s misunderstanding of its pragmatic import, thus representing a residual risk of mis-communication.

4. Data and method

4.1. Procedures: data collection, transcribing and coding

The data used in this study include the original audio recordings of VHF interaction between the VTS personnel and vessels entering the VTS service zone, and the transcript of the recordings. The data³ include 869 audio recordings, covering around 7 hours 19 minutes of VTS interaction recorded within three days. English and Mandarin Chinese are the working languages used in the interaction. The data were first transcribed verbatim with metadata added (e.g., timestamp, speech events) and the total tokens in the broad transcript are 86,028. Full consent has been obtained from the administrative institution that reserves the copyright of the data. The data presented in this study has been de-identified by removing of names of ports, stations, ships, and persons. Content of the data is briefly explained when necessary and short excerpts are shown for clarity. The expanded sequences were subsequently transcribed using the Jeffersonian Conventions⁴ (Jefferson, 2004) and coded using the scheme (Table 2) developed from Schegloff (2007) and Kendrick et al. (2020). The data were analyzed using the method of Conversation Analysis⁵.

Position	Code	Description
Pre-base	[PrE-GP]	Generic pre-sequence expansion
	[PrE-SP]	Specific pre-sequence expansion
Base	[FPP (base)]	First pair part in the base adjacency pair
	[SPP (base)]	Second pair part in the base adjacency pair
Insert base	[InE-PoF]	Post-first insert sequence expansion
	[InE-PrS]	Pre-second insert sequence expansion
Post-base	[PoE-SCT]	Signaling completion of sequence
	[PoE-RTB]	Resolving trouble
	[PoE-TOP]	Topicalizing a SPP for further on-topic talk
	[PoE-REP]	Initiating repair of a SPP
	[PoE-RCD]	Rejecting, challenging, or disagreeing with a SPP
	[PoE-REW]	Reissuing or reworking an FPP
	[PoE-InR]	Requesting additional information
	[PoE-RrS]	Repetitional receipt sequence

Table 2. Coding scheme for VTS interaction.

4.2. Data analysis

Adjacency pairs in VTS interaction can be expanded in a highly routinized way at certain positions, so that the expansions can be taken as a norm practice. Such expansions often happen when VTS and the vessel enter the talk, therefore, account for a large proportion of generic pre-expansions within which the speaker who initiates the interaction is obliged to first state the addressee via the VHF radio and then self-identify (Excerpt 1). The function of such generic pre-expansions is to establish mutual attention between VTS and the vessel before the base sequence is delivered. Since non-verbal linguistic or prosodic resources are rather limited and few delicate social actions are involved in the interaction, the pre-expansions are required as essential, expected to be performed in a clear and concise manner and to be responded promptly.

Excerpt 1. Vessel calling VTS

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1 Vessel: ((Station Name))VTS(.) ((Station Name))VTS(.)
2         This is Motor Vessel ((Ship Name))(.) This
3         is Motor Vessel ((Ship Name))(.)
4         ((Call Sign))(.) Come in please sir [PrE-GP-FPP]
5 VTS:    ((Ship Name))(.) Go ahead [PrE-GP-SPP]
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Similarly, certain types of post-expansions, for example, those that signal completion of sequences are often performed as sequence-closing thirds to register the adequacy of the SPP (Excerpt 2). This marks that the SPP is fully understood thereby foregoing an opportunity to expand the base sequence (Schegloff, 2007).

Excerpt 2. Drop-anchor time

1	Vessel: ((Ship Name)) drop anchor time 0330	[FPP (base)]
2	Outside No. 2 anchorage over	
3	VTs: Standby	[SPP (base)]
4	Vessel: Thank you sir(.) Standby(.) Thank you sir	[PoE-SCT]

Note that both pre-expansions and post-expansions mentioned above comprise vocabulary as markers of speech acts in mundane conversations (e.g., ‘*come in*’, ‘*go ahead*’, ‘*thank you*’). Such utterances are taken as part of routinized language use in VTS interaction but show a lower level of specialty compared with VTS special terms (e.g., ‘*reporting point*’, ‘*traffic clearance*’) and standardized communication phrases (e.g., ‘*MV...has collided*’, ‘*No persons injured*’). This may blur the boundary between an adjacency pair per se and what can be identified as an expansion. To address this issue from a practical perspective, we argue that 1) expanded sequences can contain adjacency pairs that are intact and un-interrupted; 2) an adjacency pair’s being identified as a free-standing one or an expansion depends on whether it performs the central communicative function as prescribed by the speech event; and 3) for an expanded sequence, a relational dependency exists upon the base adjacency pair within a limited interactional scenario. For example, a ‘calling-response’ pair (e.g., Excerpt 1) with no follow-up interaction would be identified as a free-standing adjacency pair rather than a pre-expansion. In the following sections we report our findings, taking into account both the positions at which sequences are expanded and the interactional mechanisms that are believed to mobilize the expansions.

5. Sequential expansion in VTS interaction

5.1. Sequential expansion and repair formulation

Previous research shows that interactive repair sequences are extremely frequent in informal conversations (Dingemanse & Enfield, 2024). In

maritime verbal communication, by contrast, they are less frequent considering the fact that miscommunications can be possibly rectified by other means on the VHF radio (Boström, 2021). In our data, interactive repair sequences are identified at the positions of insert-expansions and post-expansions, with none found in pre-expansions.

Excerpt 3. Vessel name

1	VTS: 船名再报一下	[FPP (base)]
2	<i>Report the ship name again</i>	
3	(2.5)	
4	Vessel: 啊 (1.0) 交管怎么讲	[InE-PoF-FPP]
5	<i>Could you repeat please</i>	
6	(1.0)	
7	VTS: 你船名再报一下	[InE-PoF-SPP]
8	<i>Report the ship name again</i>	
9	(4.0)	
10	VTS: 你船名再报一下	[InE-PoF-SPP]
11	<i>Report the ship name again</i>	
12	Vessel: 啊船名是: ((Ship Name)) (0.5)	[SPP (base)]
13	<i>Ah the ship name is ((Ship Name))</i>	
14	<i>Call sign ((Call Sign)) (.) Over</i>	

Excerpt 4. Convoy timeperiod

1	Vessel: ((Station Name)) 控制中心. ((Ship Name))	[PrE-GP-FPP]
2	((Station Name)). ((Ship Name))	
3	VTS: 请讲	[PrE-GP-SPP]
4	<i>Go ahead please</i>	
5	Vessel: >哈中心啊< (.) 中心(.) 我想问一下那个重点时段可以申请了吗?	[FPP (base)]
6	<i>Ah VTS. VTS, can I apply for the ship convoy timeperiod</i>	
7	VTS: 7 点钟之后啊	[SPP (base)]
8	<i>(Please ask) after 7 o'clock</i>	
9	(1.5)	
10	Vessel: 啊交管怎么讲?	[PoE-REP-FPP]
11	<i>Could you repeat please</i>	
12	VTS: 7 点钟之后 (.) <u>7 点钟</u>	[PoE-REP-SPP]
13	<i>After 7 o'clock. After 7 o'clock</i>	
14	Vessel: 好的 (.) 明白 (.) 谢谢	[PoE-SCT]
15	<i>OK. Understood. Thank you</i>	

The distribution of interactive repair sequences shows dramatically different patterns when they are initiated by different sides of participants. When the vessel initiates an interactive repair, the pattern is rather limited: an open request repair initiation for an insert post-first expansion to manage trouble with the FPP of VTS (Excerpt 3) or a post-expansion (Excerpt 4) with a

similar functional orientation. Such expansions are often due to a hearing problem caused by failures of communication devices or channels. The repair solutions provided by VTS are most commonly formulated in a full repeat of its FPP.

Excerpt 5. Passing reporting line

1	Vessel:	啊:((Station Name))控制中心:†(0.5)((Ship Name)):†	[PrE-GP-FPP]
2		Ah ((Station Name)) ((Ship Name))	
3	VTS:	讲过来	[PrE-GP-SPP]
4		Go ahead	
5	Vessel:	好的:(0.5)((Station Name))控制中心你好(.)	
6		OK. Good morning ((Station Name)) VTS	
7		>((Ship Name))现在过南报告线< 进口::†(1.0)	
8		((Ship Name)) is now passing the South Reporting Line, inbound	
9		来自港((Location Name))(.)目的港((Location Name))	
10		My last port is ((Location Name)) and my next port is ((Location Name))	
11		=向你报告(0.5)Over	[FPP (base)]
12		Reporting to you now. Over.	
13	VTS:	南槽†北槽†	[InE-PrS-FPP]
14		The South Channel or the North Channel	
15	Vessel:	啊:(2.0)我:: (0.5)>要是进槽的话<	
16		Ah if I should enter	
17		=我准备到-走:南槽进口(1.0)	
18		I plan to enter the South Channel	
19		我现在因为潮水的关-关系(0.5)	
20		I now, because of the tide,	
21		想暂时在:(1.5)南槽临时锚地抛锚	[InE-PrS-SPP]
22		plan to drop anchor in the South Temporary Anchorage for a while	
23	VTS:	那你26频道申请一下锚位	[SPP (base)]
24		Apply for an anchor position via Chanel 26	
25	Vessel:	哎好的(.)谢谢你	[PoE-SCT]
26		OK. Thank you	

An overwhelming majority of interactive repair sequences are initiated by VTS, as both insert and post-expansions. VTS rarely uses open requests to initiate repairs; instead, it uses restricted requests and restricted offers to direct or re-direct the vessel to provide a repair solution. For pre-second insert expansions, VTS initiates repair sequences to manage problems in producing a SPP. In Excerpt 5, VTS provides a restricted offer for a repair initiation (Line 13) which is oriented to identifying the exact channel through which the vessel is due to enter the anchorage after it passes the reporting line. The channel information is not given in the vessel's base FPP but taken as necessary by VTS, thus engendering a legitimate trouble source. The insert expansion is, therefore, oriented to managing problems in producing a SPP

(VTS' follow-up instructions). The vessel's response within the pre-second insert expansion clarifies the channel ('南槽', Line 17) as the repair solution and provides accounts for its requesting a temporary anchoring in the South Anchorage⁶ (Line 19). The vessel's response mobilizes VTS' production of the base SPP as an instruction that the vessel must apply for anchorage via another VHF channel.

Excerpt 6. Heading

1	Vessel: ((Station Name))VTS(.) ((Station Name))VTS(.)	[PrE-GP-FPP]
2	((Ship Name))† (1.0) ((Call Sign))†	
3	(1.0)	
4	VTS: Yes((Station Name))VTS(.) >Go ahead<	[PrE-GP-SPP]
5	Vessel: ((unclear speech)) Sir(.) (Good) morning† (0.5)	
6	Passing ah:(0.5) Lima 1(0.5) Reporting Line	[FPP (base)]
7	(1.5)	
8	VTS: Inbound vessel(.) or ou†tbound vessel†	[InE-PrS-FPP]
9	Vessel: This is motor vessel ((Ship Name)) (0.5)	
10	pass:ing Reporting Line Lima 1(0.5)	
11	>((Location Name))<	[InE-PrS-SPP]
12	VTS: Copy(.) You are proceeding to the North	
13	Anchorage†(0.5) and(0.5) please keep clear of	
14	other vessels at least 5 cables	[SPP(base)]
15	Vessel: >Ok copy and out<(.). Thank you†	[PoE-SCT]

VTS also initiates repair sequences as pre-second expansions to facilitate the vessel's response by requesting further information or clarifying the given information in order to help the latter select among alternative responses. In Excerpt 6, VTS initiates a repair sequence as a pre-second insert expansion using a restricted offer (Line 8). Such formulation with a high level of specificity offers the vessel restricted alternatives. The vessel, however, fails to provide an aligned response; rather, repeats what is spoken in its prior turns and reports its course (Line 10-11). Nevertheless, the vessel's response is believed to provide a legitimate repair solution since both VTS and the vessel know well about the relative positions of the Reporting Line 1 and the North Anchorage. The vessel, in this way, identifies itself as an 'inbound vessel' even it does not literally choose from the restricted alternatives offered by VTS.

Excerpt 7. Heaving up anchor

1 Vessel: °((Station Name))控制中心(.) ((Station Name))
 2 ((Station Name)) VTS. ((Station Name))
 3 控制中心(.) ((Ship Name)) (.) ((Ship Name)) 叫 ° [PrE-GP-FPP]
 4 VTS. ((Ship Name)) ((Ship Name)) calling.
 5 (1.0)
 6 VTS: 请讲↑ [PrE-GP-SPP]
 7 Go ahead please
 8 Vessel: ((Ship Name)):现在开始起锚啊↑ (1.0)
 9 ((Ship Name)) is now starting heaving up anchor
 10 0608 上引水站 (0.5) 在-在 1号::引水站 >上引水< [FPP (base)]
 11 I am arriving at the pilot station at 0608, No.
 12 1 Pilot Station
 13 VTS: 在哪里起锚啊↑ [InE-PrS-FPP]
 14 Where are you now heaving up anchor
 15 起锚去哪里↑ [InE-PoS-FPP]
 16 Where are you heading
 17 Vessel: 起锚去::1号引水站(.)
 18 I am now heaving up anchor to No.1 Pilot Station
 19 上引水(.) 0608 上引水 [InE-PrS-SPP]
 20 To pick up pilot. At 0608 to pick up pilot
 21 (4.0)
 22 VTS: 现在船在哪里啊↑ [InE-PrS-FPP]
 23 Where are you now
 24 Vessel: 我现在船在:: (2.0) 1号锚地: (1.0)
 25 I am now close to No. 1 Anchorage
 26 靠: (0.5) 东北边一点 [InE-PrS-SPP]
 27 just to the northeast a little bit
 28 (3.0)
 29 VTS: 收到了(.) 锚离底再报 [SPP (base)]
 30 Copy. Report again after anchor aweigh
 31 Vessel: 好的(.) 锚离底前向你报告(.)
 32 OK. Report to you again after anchor aweigh
 33 >好谢谢交管< [PoE-SCT]
 34 Ok. Thank you VTS

In Excerpt 7, VTS initiates two consecutive repair sequences as insert expansions to request information about the vessel's current location and course. The trouble source (‘现在开始起锚’, Line 8) is identified in the vessel's report of its current state in the base FPP. Note that the first repair sequence initiated by VTS is a mixture of post-first and pre-second insert expansions. The first half of the sequence (Line 12) is oriented to managing trouble in identifying the vessel's current location that is not given in the base FPP but can be conditionally relevant to VTS' following talk. The second half of the sequence (Line 14) is oriented to managing trouble in grasping the information given in the base FPP. VTS poses two questions in its first repair initiation, while the vessel chooses to only respond to the second question. The vessel's partial response may have multiple interpretations: 1) Considering the timeliness of real-time radio communications, the recipient

may not be able to process too much information at one time but can only remember thus responding to the part of information that is sequentially most adjacent to the next turn. 2) The vessel may have a tendency of repeating given information, which demonstrates a preference in its reception of both the meaning and the intention of VTS' repair initiation. Namely, it may tend to suppose that the information provided in its last turn is adequate. In this case, VTS would only ask for a repetition rather than something completely new. The vessel's act is, therefore, believed to perform twofold functions at the sequential level: it provides an aligned response using the insert FPP and it shows the vessel's awareness of message type and its accountability of responding to the initiation sequence.

5.2. Sequential expansion and preference design

Preference design of the response to an FPP can be examined within two dimensions (Sidnell, 2010): the action-based preferred response is to be affiliated with the FPP (Kendrick & Torreira, 2015) and the design-based preferred response is to be produced promptly, unqualified and with no account (Heritage, 1984). In our data, action-based preference design is found to occur more frequently, since VTS interaction is inherently action-based. The language practices involved are to a large extent restricted by the institutional norms, which would render the indicators of design-based preference design less prominent or at least difficult to evaluate⁷. For example, VTS interaction requires a response to be prompt and minimally qualified, which means that human-factor delays and modifiers with pragmatic import (e.g., hedges, turn-initial markers such as *'well'*, minimal responses) are to be avoided. Accountability provided in dis-preferred responses, on the other hand, is found to be overwhelmingly distributed in the vessel's speech. As some particular types of speech acts in VTS interaction (e.g., instructions, requests) are not used to invoke social delicate actions such as observed in mundane conversations, FPPs involving these speech acts are not necessarily taken as inherently 'dis-preferred' but priming specific action types. In this section, we focus on dis-preferred turns that trigger off insert or post-expansion sequences in VTS interaction.

Excerpt 8. Exchanging entry time

1	Vessel:	啊((Station Name))控制中心(0.5)((Ship Name))	[PrE-GP-FPP]
2		Ah ((Station Name)) VTS. ((Ship Name))	
3		(2.0)	
4	VTS:	请讲	[PrE-GP-SPP]
5		Go ahead please	
6	Vessel:	啊中心早上好(.) 啊:(1.0)((Ship Name))本来计划是(.)	
7		Ah good morning VTS. Ah ((Ship Name)) planned	
8		044-啊:41=啊::进::啊:: >离开的<	
9		to enter at 044-ah 41 ah- leave the anchorage	
10		=我就跟那个=>可能来不及啊<	
11		it might be too late now to enter at this time	
12		=我就跟那个: ((Ship Name)) >换了一下<	
13		I then request to exchange with ((Ship Name))	
14		=换到::0447(.)啊::到 D3(.)	
15		to 0447. ah. to D3	
16		>可以吧<	[FPP (base)]
17		Can I do that	
18		((8 lines of conversation omitted))	
19	VTS:	你到底几点钟到啊;	
20		At what time exactly do you plan to enter	
21		你换两次了啊	[InE-PrS-FPP]
22		You have asked for change twice	
23	Vessel:	我 044-47 肯定 >到得了 D3<(.)	
24		I will definitely arrive at D3 at 044-47	
25		没问题的	[InE-PrS-SPP]
26		No problem with that	
27		(3.0)	
28	VTS:	你这个计划呀(.)你计划<算好啊>	[InE-PrS-FPP]
29		You see your plan. You need to plan well	
30		((2 lines of conversation omitted))	
31		你这到 D3 的计划你算好;	
32		You need to plan well if you want to go to D3	
33		=你报的时候啊;(.)	
34		You see what you have reported	
35		你这个>换来换去<;换两次啊;	[InE-PoF-FPP]
36		You keep changing. You have changed twice	
37	Vessel:	>啊不好意思啊<(.) 因为-呃:: (1.0) ((Ship Name))	
38		Ah I'm sorry. Because eh ((Ship Name))	
39		也在我前面嘛 =>我不能-<	
40		is also in front of me. I can't-	
41		=不用追她了(.) 她就在我前面(.)	
42		I need not overtake her. She's just ahead of me	
43		我跟她换一下再进去;	[InE-PrS-SPP]
44		I just exchange time with her then I will enter	
45		(2.5)	
46	VTS:	>行收到注意安全<;	[SPP (base)]
47		Copy. Navigate with caution	
48	Vessel:	>好的谢谢关照<(.) 呃: 再会;	[PoE-SCT]
49		OK thank you. Eh goodbye	

In Excerpt 8, the vessel requests permission in its base FPP to exchange its entry time with another vessel (Line 12). Before this talk scenario happens, the vessel has already asked for a time exchange, being aware that asking for it again would increase VTS workload and may risk confusion and disorder in the traffic management, thus, being taken as a ‘dis-preferred’ action by VTS. This is proved in the preference design of the vessel’s base FPP and in VTS’ response at the second position.

The vessel in its base FPP first reports its planed entry time and explains why it needs a time exchange, which would be taken as necessary preliminary actions to give early warnings of the nature of FPP (Schegloff, 2007). To serve the purpose, the vessel uses repetitions, hesitations and hedging devices (e.g., modal verb ‘可能’, conversational filler ‘那个’, Line 10) to qualify its utterance and provides an account (‘来不及’, Line 10) before making its request. VTS does not permit the vessel’s request at the second position but produces a dis-affiliated response in the form of an insert expansion (Line 19). This response is dis-preferred at the action level since the vessel’s FPP anticipates a ‘yes’ response (see Sidnell, 2010) but also involves design-level considerations. Specifically, VTS does not give a direct ‘no’ response at this position but recycles the vessel’s previous actions related to the current talk scenario. VTS highlights that the vessel’s asking for time exchange is “more than once” (Line 35) and requires the vessel to clarify the exact entry time. The insert sequence initiation is oriented to managing problems in producing the base SPP, followed by two rounds of expanded sequencing design formulated in VTS’ blaming the vessel for frequently changing its entry time. After the vessel apologies and gives an account again (Line 37-43), VTS produces the base SPP using a highly normalized utterance (Line 46) as an affiliative response. Such a formulation points in the direction of ‘completing the talk’ at the action level, but at the same time suggests a criticizing stance in terms of preference (see Heritage & Raymond, 2012), revealed by the prosodic features (e.g., speed-up speech velocity, falling intonation, unsympathetic tone) in the VTS turn (Line 48).

1 Vessel: ((Station Name))控制中心(.)((Station Name))控制中心
 2 ((Station Name)) VTS. ((Station Name)) VTS
 3 (.)((Ship Name))叫 [PrE-GP-FPP]
 4 ((Ship Name)) calling
 5 VTS: 请讲↑ [PrE-GP-SPP]
 6 Go ahead please
 7 ((2 lines of conversation omitted))
 8 Vessel: 我向您申请(0.5)管制时间外(.)进-进槽(0.5)
 9 I request permission to en-enter the Channel
 outside the ship convoy timeperiod
 10 >您看是否可以<↑ [FPP (base)]
 11 Do you think it's OK
 12 (3.0)
 13 VTS: 静水航速多少↑ [InE-PrS-FPP]
 14 What is the ship's speed in still water
 15 Vessel: 哦(.)↑我:最大(.)航速是::10 节=10 节以上吧; [InE-PrS-SPP]
 16 Oh my maximum speed is above 10 knots-10 knots
 17 (2.0)
 18 VTS: 静水航速 10 节是吧; [InE-PrS-FPP]
 19 10 knots for speed in still water, correct?
 20 Vessel: 对对交管(.)我可以(.)赶得上; [InE-PrS-SPP]
 21 Correct, correct, VTS. I can make it
 22 (2.0)
 23 VTS: 不行啊(.)
 24 No (you are not allowed to enter the Channel)
 25 静水航速 10 节(.)太低了 [SPP (base)]
 26 (Because) 10 knots is too low to enter
 27 Vessel: >那交管< 我再↑-加加车
 28 Then, VTS, I will increase my speed
 29 =我静水(.)可以达到(.)11 节可以吧; [PoE-TOP-FPP]
 30 My speed in still water can reach 11 knots
 31 ((2 lines of conversation omitted))
 32 Vessel: 哦(.)中心=我:加-车的话(.)最大航速-
 33 Oh VTS, if I increase my speed my maximum speed-
 34 静水航速可到-可以达到 11 节=11 节 [PoE-TOP-FPP]
 35 speed in still water can reach 11 knots=11 knots
 36 VTS: 你不要是为了;进槽(.)你故意给我报-
 37 Do not give me a false report on
 38 这个静水航速报的-报的那个啥; (.)报的大(1.0)
 39 a large speed in still water just to have the
 40 entry permit
 41 你到时候进去之后
 42 After entering the Channel
 43 =潮水-潮水你那个-加不起来车 [PoE-TOP-SPP]
 44 you cannot speed up due to the tide
 45 Vessel: 呃交管中心(.)我这个>可以的可以的<
 46 Eh VTS I can I can speed up
 47 =我这个加车可以达到 11 节的 [PoE-TOP-FPP]
 48 I can reach 11 knots if I increase my speed

In Excerpt 9, the vessel in its base FPP requests an entry permission into the channel outside the ship convoy timeperiod (Line 8). VTS initiates an insert expansion asking about the vessel's speed in still water. Both the vessel and VTS know that there is a minimum requirement of vessels' speed in still water for a safe channel entry. After the vessel reports its speed in still water as 10 knots (Line 15), VTS does not produce a prompt 'yes/no' response but repeats the numerical value of the vessel's reported speed formulated as an information check (Line 18). The VTS turn as an inset expansion initiation is oriented to a possible trouble source in the vessel's last turn, while at the sequential level delays the production of a base SPP. The vessel, therefore, takes VTS' response at Line 18 as a dis-preferred one at the design level and provides a solution in its next turn (Line 20) even though the former does not necessarily perform as a repair initiation. VTS, however, ends the insert sequence by producing the base SPP formulated in a negative response (Line 23). The dis-preferred response mobilizes the vessel to negotiate at the third position, which triggers off a post-expansion sequence in which the vessel claims that it will be able to reach a greater speed in still water (Line 29) to meet the entry requirement. The post-expansion initiation is oriented to the account provided in the VTS' base SPP (Line 25), topicalizing the SPP for further on-topic talk. Receiving no response from VTS, the vessel repeats its request. VTS, again, produces a dis-preferred response (Line 36-38) expressing its suspicion that the captain of the vessel has been reporting a false value of its speed in still water just to obtain an entry permission. VTS' judgment has a distinct retrospective orientation to the vessel's prior turn (Line 15) in which hesitation ('10 ㄱ-10 ㄱ') and uncertainty (marked by turn-final particle 'ㄴ') can be identified as proof of a potentially false report.

Excerpt 10. Multi-ships encounter

1	VTS:	<((Ship Name))(. 中心叫((Ship Name))>	[PrE-GP-FPP]
2		((Ship Name)) VTS calling. ((Ship Name))	
3	Vessel:	中心请讲	[PrE-GP-SPP]
4		Go ahead please, VTS	
5	VTS:	((Ship Name)) 跟外轮怎么会啊;	[FPP (base)]
6		((Ship Name)) how would you pass each other with the foreign vessel	
7	Vessel:	啊:我降速(.)让她过我船头	[SPP (base)]
8		Ah I will slow down to make her pass my bow	
9		(2.5)	
10	VTS:	过你船头你怎么:左转啊;	[PoE-RCD-FPP]
11		Why are you turning to the port side then	
12	Vessel:	她-她不允许我	
13		She's not giving way	
14		=她一定要过我船头	
15		She insists to pass my bow	
16		=没办法(.)	
17		I have no choice	
18		我就让她(.)那我降速了	[PoE-RCD-SPP]
19		I have to give way so I slow down	
20		(3.0)	
21	VTS:	那你尽量往右啊(.)	
22		Then you should turn to the starboard side	
23		你往左转()干什么呀;	[PoE-REP-FPP]
24		Why do you turn to the port side?	
25		(1.5)	
26	Vessel:	啊:好的(.)那我-那个:	
27		Ah. OK. Then I- well	
28		>马上向右调一点<	[PoE-REP-SPP]
29		now alter to the starboard side a little	

In Excerpt 10, VTS calls the vessel asking about its intention in an encounter situation when another vessel is approaching. The vessel promptly produces the base SPP, explicating its intention (Line 7). VTS takes the vessel's response as a dis-preferred one thus initiating a post-expansion sequence to challenge the vessel's intention, questioning the legitimacy of the latter's imminent action for collision prevention. The post-expansion initiation is formulated in a rhetorical question which has consequences at both levels of preference design of the vessel's next turn. At the action level the question allows responses for an account of why the vessel intends to turn to the portside. At the design level the question has a pragmatic import that the vessel's intention is a dis-preferred one and must be reversed immediately. Considering the high stakes of the navigational situation, the vessel's instant adjustment to its action, as understood by VTS, has priority over an account. The vessel, however, produces another dis-preferred response (Line 12-18)

by providing an account that obviously contradicts its intention. This triggers off another round of post-expansion initiation from VTS (Line 23) who claims its authority and gives the vessel a clear, unequivocal instruction to turn to the starboard side.

6. Discussion and concluding remarks

In this study we raised research questions concerning 1) communicative functions of expanded sequences when produced at different positions in VTS interaction; and 2) their institutional adaptations to human interaction from a procedural perspective. We report our research findings below before providing implications of our study.

6.1. Procedural consequences of sequential expansion in VTS interaction

Expanded sequences in VTS interaction are taken as “procedurally consequential” (Schegloff, 1992, p. 110) because they demonstrate how co-participants’ orientation to specific goals and identities “shapes interaction in recognizable and peculiar ways” (Pallotti, 2014, p. 54) in professional communication at work. Constrained by limited lexical choices and referential frameworks (see Franceschi, 2014) in the maritime work places, expanded sequences are inherently performative in VTS interaction. There is a clear boundary of sequential expansion defined by the nature of specific tasks in specific speech events, beyond which further expansion is not expected or allowed to happen.

The most compressed expansion space is identified at the pre-base positions where both generic and specific pre-expansions are formulated with the minimal use of lexis. Generic pre-expansions are used overwhelmingly more frequently than specific ones and are produced at the highest level of formularity, compared with insert expansions and post expansions. To establish mutual attention is the most prominent purpose of generic pre-expansions, strictly formulated in the pattern “Naming addressee + Self-identification + the performative marker ‘*calling*’”. Specific pre-expansions are only found to be produced when the vessel has been undergoing the speech event or at least as a relevant party in prior actions. Although some of the actions performed in VTS interaction are not necessarily taken as “socially delicate” or “face-threatening” thus requiring pre-management (see

Kendrick et al., 2020, p. 133), specific pre-expansions are used to deal with VTS dis-preference or to re-gain the vessel's attention to what is assessed by VTS as navigational issues or communicative inadequacy. The pre-expansion sequences in VTS interaction, and possibly other radio-mediated professional communication, signal an essential and legitimate 'way-in' to goal-oriented talk. It establishes the mutual attention as normative, accountable joint commitment, and on the other hand defines a division of labor (Dingemanse & Enfield, 2024) between event-driven initiation and response as an obligatory endeavor.

Insert sequences see a prominent use of repairs and requests, dealing with issues of information reception, understanding and delivery. Specifically, post-first insert expansions are identified as central cases of interactive repairs used to manage troubles with the base FPP which are usually hearing problems caused by non-human factors such as poor communication quality or interruption by other vessels. Pre-second insert expansions are found to be initiated by both sides to require further information as a pre-condition for producing the base SPP or used by VTS to facilitate the vessel's response by providing alternative resources. In terms of types of repair initiation, our findings show that open requests are mainly used by vessels to initiate interactive repairs that signal difficulty in hearing or understanding. VTS, by contrast, uses more restricted requests and restricted offers to direct or re-direct the vessel to provide repair solutions. This finding adds to previous research on interactive repair in other professional communicative contexts (e.g., Boström, 2021), concerning the speaker-specific distribution of different kinds of repair initiation. In VTS interaction, both repair initiations and information requests within insert expansions are used to manage the recurrent contingencies (Schegloff, 2007) before a legitimate base SPP can be produced. This performs as an "informational safeguard" (Dingemanse & Enfield, 2024, p. 33) to ensure adequacy and accuracy of language use in the safety-critical settings of navigation, which would, however, lower the predictability of the forthcoming conversation.

Post-expansion sequences embrace greater variation, compared with pre-expansions and insert expansions. Minimal post expansions as 'sequence-closing thirds' are most frequently used to explicitly signal sequence completion. This is closely related to the stipulated procedural norms that co-participants in maritime interaction must verbalize the action of information reception using 'closed-loop' communication and that the closing exchanges need to be compressed into minimal turns (Pritchard &

Kalogjera, 2000). Comparing to previous research findings on non-minimal post-expansions in mundane conversations, VTS interaction as professional communication is found to show a “remedial or dis-affiliative” nature of non-minimal expansions (Kendrick et al., 2020, p. 130) that are used to initiate repair on a SPP and to reject, challenge, or disagree with a SPP. The non-minimal post-expansions to topicalize a SPP can also involve remedial efforts when the dis-affiliative nature of the base SPP has been identified. This is the case of Excerpt 10 in which the vessel evaluates the base SPP produced by VTS as a dis-affiliative response to its earlier request for an entry permit, thus initiating a post-expansion sequence to topicalize the SPP by self-modifying the value of its speed in still water.

Post-expansion sequences in VTS interaction project interactional trajectories when VTS and vessels hold different views concerning whether the core action in a specific speech event is ready to be completed. As the goal-orientedness of the interaction to a large extent limits the use of inferential and pragmatic resources (Andersen, 2001) to manage dis-affiliated turns, both VTS and vessels have to initiate post-expansion sequences to deal with unsolved issues or residual misunderstandings.

Issues of preference are found to be prevalent in VTS interaction when co-participants design turns and develop expanded sequences. Previous research suggests that “preferred SPPs are sequence-closure relevant” and “dis-preferred SPPs are expansion-relevant turns” (Liddicoat, 2007, p. 164). Our findings on preferred responses in VTS interaction correspond to the claim, showing that the patterning of affiliative responses to requests are both produced and processed promptly, unqualified with minimum delay (Kendrick & Torreira, 2015). The initiations, on the other hand, are also found to manifest recipient design concerning ‘preference for agreement’ (Sacks, 1987). When requests are formulated into polar questions to seek information, both VTS and vessels assess the probability of their recipient’s producing a preferred or dis-preferred response and show their stance towards the probability when formatting questions (see Raymond, 2020). For example, vessels are found to provide accountability in their FPP involving a request before VTS could produce its response when the request, as perceived by the vessel, risks disaffiliation. Moreover, when a request does not receive a prompt response from VTS, the vessel will adjust the design of its next turn in an expanded sequence to “address the possibility of rejection” (Heritage & Raymond, 2012, p. 41) thus to negotiate for chances of affirmation. These findings add to the discussion on the position-

function deixis of patterned language use within the larger context of professional communication.

6.2. Institutional adaptations to interactive communication

VTS interaction negotiates maritime institutional rigidity through sequential adaptations that mirror—yet strategically constrain—core features of human social communication. Sequential expansion in VTS interaction provides a mediating space where special turn-taking procedures can be performed, monitored, and adjusted, concerning the strict restrictions on when and which party is obliged to speak and what kind of contribution they may make (Heritage, 2013). For example, when interrogative series are produced by VTS as mandatory conversational chains, the vessel's failure in providing response will be taken as a departure from the norm, thus being subject to more interrogation within expanded sequences.

On the other hand, sequential expansion can be a result of mediation afforded by technologies when participants in VTS interaction are “not co-located” (Boström, 2021, p. 90). This would render some part of the interaction highly repetitive (e.g., opening calling, message type marking, closed-loop communication), thus being “highly practiced” (Heritage, 2013, p. 12) to enhance situational awareness and to normalize procedural management. Also, the temporality of task-based interaction (Sellberg & Lundin, 2018) can be further highlighted when VTS constantly monitors vessel traffic and takes the initiative to expand or stop expanding sequences when intervention is obligatory. These findings demonstrate how institutional frameworks governing VTS talk selectively incorporate and constrain universal human communicative tendencies, thereby shaping the tension between navigational safety and interactional fluidity in maritime contexts.

The institutional adaptations of VTS interaction to the general tendency can be understood in the following aspects concerning the foundations of human interactive language use: 1) reflexivity (Dingemanse & Enfield, 2024); 2) joint commitment (Enfield & Sidnell, 2022); and 3) marking of turn design. The reflexivity embodied in VTS interaction manifests in co-participants' spontaneous and constant assessment of the progressivity of talk. The evaluative reflexivity is mandatory because meanings conveyed are inherently performative rather than inferential. Therefore, ways of avoiding the ‘responsive quality-control’ devices (Dingemanse & Enfield, 2024, p. 30)

such as insert-expansions of repairs are to a large extent blocked. The reason is that in VTS interaction the need to ensure navigational safety and informational accuracy overrides considerations of social delicacies (Galantucci et al., 2020). The institutional adaptation of joint commitment in VTS interaction is closely related to the constraints on how to properly establish mutual attention, render accountability, and address problems. This manifests in co-participants' frequent use of routinized procedures (e.g., opening callings as pre-expansions, direct insert-expansions as interrogatives), which presumably compromises the lack of non-verbal resources to manage communicative troubles. In terms of turn-design marking, a curious observation is that participants of VTS interaction would occasionally manipulate the procedural meaning of some highly practiced utterances for pragmatic purposes. For example, vessels are found to use the courtesy utterance *'thank you sir'* as a minimal post-expansion to show their intention of sequence closing, which in some cases however, may not necessarily be communicatively affiliative.

6.3. Implications

Our observations of real-time maritime communication—particularly through CA—reveals discrepancies between prescriptive IMO protocols (e.g., SMCP, COLREGs) and actual communicative practices. First, our findings show that pragmatics and their consequences do relate in real-time maritime communication. Although expectations and intentions can be efficiently framed by the application of restricted message markers, variable interpretations even misunderstandings are possible due to participants' use of other pragmatic devices. Such improvisation to some extent challenges the enforced lexical and syntactic uniformity in stipulated communication protocols of IMO. Therefore, a monitor system able to detect and evaluate pragmatic elements (concerning the level of safety-related risk of using them and allowing more contextual flexibility) is worth considering in terms of proposing refinement of protocols. Second, IMO protocols mandate closed-loop communication (e.g., “Over,” “Roger”) that is expected to be simple and concise, but our findings show frequent sequential expansions within which misunderstandings would trigger prolonged repairs outside SMCP norms (Sellberg & Lundin, 2018). Embedded confirmation checks (e.g., mandatory paraphrasing for critical information) are thus need to be allowed. Third, IMO protocols assume equal competence of all participants in SMCP use, but the real-time VTS interactions reveal knowledge gaps and

power asymmetries between speakers. This calls for an awareness of how IMO protocols can be strategically applied, for example, emphasizing active listening and repairs. The bottom-up, data-driven method of CA contributes to adding important “sequence-internal evidence” (Clift & Haugh, 2021, p. 5) to what has been addressed as suitable, effective communicative performances (Bocanegra-Valle, 2011) in maritime communication.

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References

- Andersen, P. (2001). Maritime work and communication. *Australasian Journal of Information Systems*, 8(2), 83-102. <https://doi.org/10.3127/ajis.v8i2.246>
- Bailey, N., Housley, W., & Belcher, P. (2006). Navigation, interaction and bridge team work. *Sociological Review*, 54(2), 342-362. <https://doi.org/10.1111/j.1467-954X.2006.00617.x>
- Bocanegra-Valle, A. (2011). The language of seafaring: Standardized conventions and discursive features in speech communications. *International Journal of English Studies*, 11(1), 35-53. <https://doi.org/10.6018/ijes/2011/1/137091>
- Boström, M. (2021). Other-initiated repair as an indicator of critical communication in ship-to-ship interaction. *Journal of Pragmatics*, 174, 78-92. <https://doi.org/10.1016/j.pragma.2021.01.007>
- Brodje, A., Lundh, M., Jenvald, J. & Dahlman, J. (2013). Exploring non-technical miscommunication in vessel traffic service operation. *Cognition Technology and Work*, 15(3), 347-357.
- Clift, R. & Haugh, M. (2021). Conversation analysis and sociopragmatics. In H. Michael, Z. K. Dániel, & T. Marina (Eds.), *The Cambridge handbook of sociopragmatics* (pp. 616-638). Cambridge University Press.
- Costa, N. A., Lundh, M., & MacKinnon, S. N. (2018). Non-technical communication factors at the Vessel Traffic Services. *Cognition, Technology & Work*, 20, 63-72. <https://doi.org/10.1007/s10111-017-0448-9>
- De Vries, L. (2015). Success factors for navigational assistance: a complementary ship-shore perspective. In D. Waard, et al. (Eds.), *Proceedings of the Human Factors and Ergonomics Society Europe Chapter 2014 Annual Conference* (pp. 175-186). HFES.
- Díaz Pérez, J. M. (2002). IMO Standard Marine Communication Phrases and teaching their use in the Vessel Traffic Services context. In *Proceedings of the 3rd International Congress on Maritime Innovations and Research* (pp. 649-658). Universidad del País Vasco.
- Dingemanse, M., & Enfield, N. J. (2015). Other-initiated repair across languages: towards a typology of conversational structures. *Open Linguistics*, 1(1), 96-118. <https://doi.org/10.2478/opli-2014-0007>

- Dingemanse, M., & Enfield, N. J. (2024). Interactive repair and the foundations of language. *Trends in Cognitive Sciences*, 28(1), 30-42. <https://doi.org/10.1016/j.tics.2023.09.003>
- Duncker, D. (2019). *The reflexivity of language and linguistic inquiry: Integrational linguistics in practice*. Routledge.
- Enfield, N. J., & Sidnell, J. (2022). *Consequences of language: From primary to enhanced intersubjectivity*. The MIT Press.
- Franceschi, D. (2014). The features of maritime English discourse. *International Journal of English Linguistics*, 4(2), 78-87. <https://doi.org/10.5539/ijel.v4n2p78>
- Froholdt, L. L. (2010). Getting closer to context: a case study of communication between ship and shore in an emergency situation. *Text & Talk*, 30(4), 385-402. <https://doi.org/10.1515/text.2010.019>
- Froholdt, L. L. (2016). 'I see you on my radar': Displays of the confirmatory form in maritime technologically mediated interaction. *The Sociological Review*, 64(3), 468-494. <https://doi.org/10.1111/1467-954X.12333>
- Froholdt, L. L. (2017). Coping with Captivity in a maritime hijacking situation. *WMU Journal of Maritime Affairs*, 16(1), 53-72. <https://doi.org/10.1007/s13437-016-0101-0>
- Froholdt, L. L. (2019). "The helm is lost!": Reframing psychological matters in non-routine technologically mediated interaction in a maritime context. *Text & Talk*, 39(2), 171-190. <https://doi.org/10.1515/TEXT-2019-2023>
- Galantucci, B., Langstein, B., Spivack, E., & Paley, N. (2020). Repair avoidance: When faithful informational exchanges don't matter that much. *Cognitive Science*, 44(10), e12882. <https://doi.org/10.1111/cogs.12882>
- Gilbert, M. (2014). *Joint commitment: How we make the social world*. Oxford University Press.
- Heritage, J. (1984). *Garfinkel and ethnomethodology*. Polity Press.
- Heritage, J. (2013). Language and social institutions: The Conversation Analytic view. *Journal of Foreign Languages [外国语]*, 36(4), 2-27.
- Heritage, J., & Clayman, S. (2010). *Talk in action: Interactions, identities, and institutions*. Blackwell.
- Heritage, J., & Raymond, G. (2012). Navigating epistemic landscapes: Acquiescence, agency and resistance in responses to polar questions. In J. P. de Ruiter (Ed.), *Questions: Formal, functional and interactional perspectives* (pp. 179-192). Cambridge University Press.
- Hetherington, C., Flin, R., & Mearns, K. (2006). Safety in shipping: The human element. *Journal of Safety Research*, 37(4), 401-411. <https://doi.org/10.1016/j.jsr.2006.04.007>
- International Association of Marine Aids to Navigation and Lighthouse Authorities (2020). *Guidelines for vessel traffic services (VTS)* [5th ed.]. IALA.
- International Maritime Organization (IMO). (2002). *International Convention on the Safety of Life at Sea (SOLAS), 1974, as amended*. IMO.
- International Maritime Organization. *IMO Standard Marine Communication Phrases*. Resolution A.918(22), IMO, 2001.
- Inter-Governmental Maritime Consultative Organization. *Standard Marine Navigational Vocabulary*. Resolution A.380(X), IMCO, 1977.
- Jefferson, G. (2004). Glossary of transcript symbols with an introduction. In G. H. Lerner (Ed.), *Conversation analysis: Studies from the first generation* (pp. 13-31). John Benjamins.
- John, P., Brooks, B., & Schriever, U. (2019). Speech acts in professional maritime discourse: A pragmatic risk analysis of bridge team communication directives and commissives in full-mission simulation. *Journal of Pragmatics*, 140, 12-21. <https://doi.org/10.1016/j.pragma.2018.11.013>
- Johnson, E. (1982). *The Seaspeak research strategy and the computer*. Aston University LSU.
- Kendrick, K. H., Brown, P., Dingemanse, M., Floyd, S., Gipper, S., Hayano, K., Hoey, E., Hoymann, G., Manrique, E., Rossi, G., & Levinson, S. C. (2020). Sequence organization: A universal infrastructure for social action. *Journal of Pragmatics*, 168, 119-138. <https://doi.org/10.1016/j.pragma.2020.06.009>
- Kendrick, K. H., & Torreira, F. (2015). The timing and construction of preference: A quantitative study. *Discourse Processes*, 52(4), 255-289. <https://doi.org/10.1080/0163853X.2014.955997>
- Liddicoat, A. J. (2007). *An introduction to conversation analysis*. Continuum.
- Pallotti, G. (2014). Conversation analysis: Methodology, machinery and application to specific settings. In H. Bowles, & P. Seedhouse (Eds.), *Conversation analysis and language for specific purposes* (pp. 37-67). Peter Lang.
- Praetorius, G. (2014). Vessel Traffic Service (VTS): A maritime information service or traffic

control system? *Understanding everyday performance and resilience in a socio-technical system under change*. PhD dissertation, Chalmers University of Technology.

Pritchard, B., & Kalogjera, D. (2000). On some features of conversation in maritime VHF communication. In M. Coulthard, J. Cotterill, & F. Rock (Eds.), *Dialogue analysis VII: Working with dialogue* (pp. 185-194). De Gruyter.

Sacks, H. (1987). On the preferences for agreement and contiguity in sequences in conversation. In G. Button & J. R. E. Lee (Eds.), *Talk and social organisation* (pp. 54-69). Multilingual Matters.

Sacks, H., Schegloff, E., & Jefferson, G. (1974). A simplest systematics for the organization of turn taking in conversation. *Language*, 50(4), 696-735.

Schegloff, E. A. (1992). Repair after next turn: The last structurally provided defense of intersubjectivity in conversation. *American Journal of Sociology*, 97(5), 1295-1345.

Schegloff, E. A. (2007). *Sequence organization in interaction: A primer in conversation analysis*. Cambridge University Press.

Schegloff, E. A. & Sacks, H. (1973). Opening up Closings. *Semiotica*, 8(4), 289-327.

Sellberg, C., & Lundin, M. (2017). Demonstrating professional intersubjectivity: The instructor's work

in simulator-based learning environments. *Learning, Culture and Social Interaction*, 13, 60-74. <https://doi.org/10.1016/j.lcsi.2017.02.003>

Sellberg, C., & Lundin, M. (2018). Tasks and instructions on the simulated bridge: Discourses of temporality in maritime training. *Discourse Studies*, 20(2), 289-305. <https://doi.org/10.1177/1461445617734956>

Sidnell, J. (2010). *Conversation Analysis: An Introduction*. Wiley-Blackwell.

Stevens, P., & Johnson, E. (1983). SEASPEAK: A project in applied linguistics, language engineering, and eventually ESP for sailors. *The ESP Journal*, 2(2), 123-129. [https://doi.org/10.1016/0272-2380\(93\)90002-O](https://doi.org/10.1016/0272-2380(93)90002-O)

Stevens, P., & Weeks, F. F. (1985). The creation of a regularized subset of English for mandatory use in maritime communications: SEASPEAK. *Language Planning Newsletter*, 11(2), 1-6.

Taylor, T. J. (2000). Language constructing language: the implications of reflexivity for linguistic theory. *Language Sciences*, 22(4), 483-499. [https://doi.org/10.1016/S0388-0001\(00\)00016-4](https://doi.org/10.1016/S0388-0001(00)00016-4)

Trenkner, P. (2010). Linguistic challenges in maritime communication: A case study of SMCP implementation. *Maritime Policy & Management*, 37(4), 389-405.

Yun Pan is Lecturer in Applied Linguistics at Shanghai Maritime University, China. Yun's research interests lie at the intersections of Corpus Linguistics, pragmatics, and sociolinguistics. She has previously published in international peer-reviewed journals including *Applied Linguistics Review*, *Pragmatics & Cognition*, *Pragmatics, Text & Talk*, and *Pragmatics & Society*.

Jie Wang is Lecturer in Marine Engineering at Shanghai Maritime University, China. Jie's research interest includes maritime language use, port engineering, and shipping networks. He has previously published in international peer-reviewed journals including *American Journal of Traffic and Transportation Engineering* and *Marine Technology*.

Yan Zhang is Professor in Applied Linguistics at Shanghai Maritime University, China. Yan's research interests lie at the intersections of English for specific purposes and maritime language. She has previously published in international peer-reviewed journals including *Journal of Foreign Languages*,

Foreign Language Teaching and Research, Ibérica, and Journal of Marine Science and Engineering.

NOTES

¹ See the IMO official website <https://www.imo.org/en/ourwork/safety/pages/standardmarinecommunicationphrases.aspx> for the full documentation of the SMCP.

² ‘Sequence-closing thirds’ as a conversational structure identified in conversation analysis marks the coordinated completion of a three-part interactional sequence (e.g., Question □ Answer □ Acknowledgment). They serve to ratify mutual understanding and project the end of a sequence, allowing participants to transition to new topics or actions (Schegloff, 2007).

³ Due to the sensitivity of VTS interaction, we are not able to share the full dataset with a third party. The anonymized transcript files may be available on request to restricted institutional members under a data-use agreement.

⁴ See the appendix for a partial list of the Jeffersonian Conventions used for CA transcribing.

⁵ CA has been applied in the field of maritime communication, focused on specific conversational structures (e.g., Froholdt, 2017; Boström, 2021), to approach ship-to-shore communication (e.g., Froholdt, 2010), safe navigation (e.g., Bailey et al., 2006; Froholdt, 2016), decision-making processes (e.g., Froholdt, 2017), and technology-mediated interaction (e.g., Froholdt, 2019).

⁶ The South Anchorage is located to the south of the South Channel for temporary anchoring of passing vessels to stand by or avoid winds and tides. The continuous anchoring time of the vessel anchored in the South Anchorage shall not exceed 72 hours.

⁷ It could also be the case that the adherence to specified standards in some senses would make VTS interaction easier to evaluate. For example, as prescribed by SMCP, message markers (e.g., ‘instruction’, ‘warning’, ‘intension’, ‘information’, ‘request’) may be applied in ship-to-shore communication to increase the probability of the purpose of the message being properly understood. This would to some extent facilitate the assessment of interlocutors’ preference concerning turn design. However, our data show that such message markers are scarcely used in real VTS interaction.

Appendix. A partial list of the Jeffersonian Conventions (Jefferson, 2004)

Category	Symbol	Name	Description
Timing	[]	Brackets	Indicates the start and end of overlapping speech.
	=	Equals sign	Indicates "latching" (no gap between turns or words).
	(0.5)	Timed pause	Silence measured in seconds.
	(.)	Micro-pause	A brief pause, usually less than 0.2 seconds.
Intonation	.	Period	Falling, terminal intonation.
	,	Comma	Continuing/slightly rising intonation (not a grammar mark).
	?	Question mark	Strongly rising intonation.
	¿	Inverted ?	Weakly rising/questioning intonation.
	↑ ↓	Arrows	Indicates a sharp rise or fall in pitch.
Delivery	-	Dash	A sudden cut-off or self-interruption.
	word	Underlining	Emphasis or stress on a syllable or word.
	WORD	Capitals	Speech that is significantly louder than surrounding talk.
	°word°	Degree signs	"Piano" speech (significantly quieter/whispered).
	> <	Inward arrows	Compressed or speeded-up speech (fast).
	< >	Outward arrows	Prolonged or slowed-down speech.
Vocalisms	::::	Colons	Stretching of the preceding sound (vowel or consonant).
	.hhh	Dot-H	Audible inhalation (in-breath).
	hhh	H	Audible exhalation (out-breath).
	(hh)	Parentheses H	Aspiration within speech (e.g., laughter or breathiness).
Misc.	£word£	Pound signs	"Smile voice" (talk produced while smiling).
	(())	Double parens	Analyst's comments or non-verbal sounds (e.g., ((static))).
	(word)	Single parens	Uncertain transcription (transcriber's best guess).